

REMARKS

With entry of this amendment, claims 1-6 and 11-23 are pending and claims 7-10 are canceled. Claims 1, 5, 6, 19 and 20 are amended and claims 2, 3, 11-18, 22 and 23 are withdrawn.

The amended claims relate to a polynucleotide encoding the amino acid sequence of SEQ ID NO: 2, and an amino acid sequence of SEQ ID NO: 2 positions 27 to 213. The 213 amino acids of the N-terminal residue of the PSEC137 are disclosed at page 3, lines 9-12, and Figure 1. The mature form of PSEC137 has the amino acid sequence of SEQ ID NO: 2 positions 27-571. (See page 21, lines 19 to 24). Thus, positions 27 to 213 are an important functional region of PSEC137. (See page 9, line 35 to page 10, line 5.) Positions 136 to 696 of the nucleotide sequence encode this region. It is believed that any polypeptide comprising the amino acid sequence of SEQ ID NO: 2 positions 27 to 213 will retain growth and differentiation factor activity.

Priority Documents

As evidenced by the attached Form PCT/IB/304, applicants have filed on August 25, 2000 a certified copy of the priority document JP 11/194179 with the International Bureau of WIPO. The Examiner is respectfully requested to contact the PCT branch of the USPTO for the certified copy of the priority document JP 11/194179.

Specification

Applicants have removed the hyperlinks from the specification and reformatted the trademarks as required by the Examiner. Applicants note that the trademarks are already accompanied by generic terminology, i.e., ABI PRISM™ is described as "a DNA sequencer," BIGDYE™ as "DNA sequencing reagents" and AMPLITAQ™ as "heat-resistant DNA polymerase for PCR."

Rejections Under 35 U.S.C. § 101

The Examiner has rejected claims 1, 5, 7, and 19 under 35 U.S.C. § 101. Applicants have amended these claims to render this rejection moot.

Rejections Under 35 U.S.C § 112

The Examiner has rejected claims 1, 4-10, 19 and 20 under 35 U.S.C. § 112 second paragraph for being indefinite. In the present claim amendments, the terms "stringent condition" and "functionally equivalent" have been deleted thereby rendering this rejection moot.

The Examiner has rejected claims 1, 4-10, 19 and 20 under 35 U.S.C. § 112 first paragraph for lacking enablement. In the present claim amendments, the region of amino acid sequence of PSEC137 recites positions 27 to 213 of amino acid sequence of SEQ ID NO: 2. This region retains growth and differentiation factor activity (See Example 2, page 21 lines 30 to 33, and page 9, line 35 to page 10, line 5).

The 213 amino acids of N-terminal residues of the PSEC137 protein show 23.9% identity to the 215 amino acids of N-terminal residues of TPO comprising the TPO active fragment, and show 23.1% identity to EPO193 residues (See Figure 1 of the present specification).

Generally, the functions of growth and differentiation factors, including EPO and TPO, are retained in polypeptides comprising amino acid sequences comprising more than 20 % identity. For example, the N-terminal region (amino acid residues 1-172) of human TPO shows 23% sequence homology to human EPO. (See page 1, line 36 to page 2, line 2). Human and globefish EPO, and human and chicken TPO have about 36% and 32% identity respectively (See Exhibit 1, attached hereto). Therefore, the amino acid sequence of SEQ ID NO: 2 positions 27 to 213 is functional. Moreover, partial peptides comprising the amino acid sequence is useful for an antigen to obtain antibodies blocking the growth and differentiation factors activity. Thus, the amended claims fulfill the enablement requirements.

Rejections Under 35 U.S.C. § 102

The Examiner had rejected claims 1 and 7-10 for lacking novelty over AAD09622. In the presently amended claims, claim 1 reads on a polynucleotide encoding the amino acid sequence of SEQ ID NO: 2, positions 27 to 213. Compared to the amino acid sequence of AAD09622, 86 amino acid residues have been deleted in the amino acid sequence of the present invention (See Exhibit 2). Thus, the amino

acid sequence of SEQ ID NO: 2, especially sequences comprising positions 27 to 213, is novel over that of AAD09622.

Rejections Under 35 U.S.C. 103

The Examiner has rejected claims 4-6 and 19-20 for obviousness over AAD09622. Claim 1 recites a polynucleotide encoding an amino acid sequence comprising at least positions 27 to 213 of SEQ ID NO: 2. Thus, the chemical structure of the polypeptide of the present invention is clearly distinguished from AAD09622. Furthermore, although AAD09622 is predicted to be serin palmitoyl-transferase, polypeptides comprising the sequence of SEQ ID NO: 2 are growth and differentiation factors. Therefore, applicants believe that the present invention is patentable over AAD09622.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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FOLEY & LARDNER LLP
Customer Number: 22428
Telephone: (202) 672-5300
Facsimile: (202) 672-5399



Matthew E. Mulkeen
Attorney for Applicants
Registration No. 44, 250